

What is claimed is:

1. An information providing method on a communication network including a mobile packet communication network accommodating a plurality of mobile terminals via a radio channel and an IP (Internet Protocol) core network to which a server for providing information service is connected, said mobile packet communication network and the IP core network being connected via a gateway apparatus, the method comprising the steps of:

making a request from a service management node for managing visit location information of each mobile terminal in said mobile packet communication network to said gateway apparatus to set management information for providing information service to a mobile terminal, in an execution process of a procedure for accommodating the mobile terminal to said mobile packet communication network; and

registering management information regarding said mobile terminal into a management table by said gateway apparatus in response to reception of said setting request, checking whether a service request has been issued to a service provider with respect to information service indicated by a service identifier included as a part of said management information and,

making a request by said gateway apparatus to a specific server in said IP core network as said service provider to start the information service if a service request has not been issued.

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2. An information providing method according to claim 1, wherein said service management node requests setting of said management information designating at least an address of said mobile terminal and an identifier of information service to be provided, and

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said gateway apparatus registers said management information including the information designated by said setting request and attribute information regarding said mobile terminal obtained from other server, into said management table.

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3. An information providing method according to claim 1, wherein when a packet including service information is received from said specific server, said gateway apparatus refers to said management table and transfers said received packet to said mobile packet communication network by using the address of said mobile terminal registered as a part of the management information as a destination.

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4. An information providing method according to claim 1, wherein said gateway apparatus has: a first management table for storing, in correspondence with each service identifier, an address of a server operating as a provider of service, a destination address to be attached to a service information packet, and status information indicative of whether a service request has been issued or not; and a second management table for storing management information regarding said mobile terminal is registered, and

when a packet including the service information is received from said specific server, said gateway apparatus specifies a service identifier corresponding to said received packet with reference to said first management table, searches said second management table for a management information record including said service identifier to thereby specify an address of a mobile terminal to which said received packet is to be transferred, and transfers said received packet or a duplicate of said received packet to said address.

5. An information providing method according to claim 4, wherein a filtering condition is designated

in correspondence with a specific service identifier in said first management table, and

when a packet including service information is received from said specific server, in the case where  
5 a filtering condition is designated in correspondence with a service identifier specified in said first management table, said gateway apparatus uses an address of a mobile terminal of which management information satisfies said filtering condition among  
10 addresses of mobile terminals specified in said second management table as a destination of said received packet.

6. An information providing method according  
15 to claim 4, wherein said second management table permits registration of a plurality of service identifiers with respect to a single mobile terminal.

7. An information providing method according  
20 to claim 3, wherein said gateway apparatus converts a destination address of a packet received from said specific server from a global IP address to a local IP address, and transfers the resultant to said mobile packet communication network.

8. An information providing method on a communication network including a mobile packet communication network accommodating a plurality of mobile terminals via a radio channel and an IP (Internet Protocol) core network to which a server for providing information service is connected, said mobile packet communication network and the IP core network being connected via a gateway apparatus, the method comprising the steps of:

10 making a request from a service management node for managing a visit location of each mobile terminal in said mobile packet communication network to said gateway apparatus to set management information for providing information service to a mobile terminal by  
15 designating a mobile terminal address and an information service identifier at the time of registering location of the mobile terminal in said mobile packet communication network; and

registering the management information regarding  
20 said mobile terminal into a management table by said gateway apparatus having received said setting request, checking whether a service request has been issued to a service provider with respect to information service to be provided to said mobile terminal and, making a  
25 request to a specific server as said service provider

to start the information service when a service request has not been made.

9. An information providing method according  
5 to claim 8, wherein when said gateway apparatus registers the management information regarding a mobile terminal into a management table, location information obtained from a location information server for managing geographical local information of  
10 each mobile terminal in said mobile packet communication network is registered as a part of the management information into said management table, and  
when a packet designating a delivery area as information service is received from said specific  
15 server, said gateway apparatus refers to said management table to select an address of a terminal to which said received packet is to be delivered among a group of mobile terminals of which present location is in said designated area, and transfers said received  
20 packet to said mobile packet communication network by using said address as a destination address.

10. A gateway apparatus for connecting a mobile  
packet communication network accommodating a  
25 plurality of mobile terminals via a radio channel, and

an IP (Internet Protocol) core network to which a server for providing information service is connected, comprising:

means for registering management information  
5 regarding said mobile terminal into a management table when a setting request of the management information for information service to said mobile terminal is received from a service management node for managing a visit location of the mobile terminal in said mobile  
10 packet communication network, and if a service request of information service for said mobile terminal has not been made to a service provider, requesting a specific server as said service provider to start the information service; and

15 packet transferring means for specifying when a packet including service information is received from said specific server, an address of a mobile terminal, to which information service by said received packet is to be provided, based on said management table and  
20 transferring said received packet to said mobile packet communication network by using the address as a destination address.

11. A gateway apparatus according to claim 10,  
25 wherein said packet transferring means includes means

for receiving a packet including said service information in a multicast packet format from said specific server and transferring the packet in a unicast packet format to a mobile terminal specified by said management table.

12. A gateway apparatus according to claim 10, wherein said packet transferring means includes means for converting a destination address of a packet received from said specific server from a global IP address to a private IP address, and transferring the resultant packet to said mobile packet communication network.

13. A gateway apparatus according to claim 10, further comprising:

a first management table for storing, in correspondence with a service identifier, an address of a server as a provider of service, a destination address to be attached to a service information packet, and status information indicative of whether a service request has been issued or not; and

a second management table for storing management information regarding said mobile terminal, and

wherein when a packet including the service



information is received from said specific server, said received packet transferring means specifies a service identifier corresponding to said received packet with reference to said first management table, searches said  
5 second management table for a management information record including said service identifier to thereby specify an address of a mobile terminal to which said received packet is to be transferred, and transfers said received packet or a duplicate of said received  
10 packet to said mobile terminal address.